

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for manufacturing a fuel cell separator, ~~for sandwiching from both sides via diffusion layers an anode and a cathode disposed on an electrolyte membrane, the fuel cell manufacturing method comprising the steps of:~~

~~a step of obtaining a mixture by mixing a thermoplastic resin and a~~
~~conductive material, wherein the thermoplastic resin ~~being is~~ a resin selected from~~
~~the group consisting of: ethylene / vinyl acetate copolymers, ethylene / ethyl~~
~~acrylate copolymers, straight-chain low-density polyethylene, polyphenylene sulfide~~
~~and modified polyphenylene oxide, and wherein the conductive material includes~~
~~being carbon particles of at least one selected from the group consisting of black~~
~~lead, Ketchen black and acetylene black;~~

~~a step of forming with this the mixture a separator starting material having gas~~
~~flow passage grooves in a contact face thereof ~~to contact the diffusion layer~~; and~~

~~a step of irradiating the contact face of this the separator starting material~~
~~with an electron beam.~~

2. (canceled)

3. (Currently Amended) A method for bonding a fuel cell separator and an electrode diffusion layer to one another, comprising the steps of:

disposing a carbon fiber electrode diffusion layer on a thermoplastic resin separator;

applying a welding pressure to the electrode diffusion layer and separator;
and

vibrating at least one of the electrode diffusion layer and the separator to produce frictional heat between said electrode diffusion layer and said separator and thereby welding the electrode diffusion layer to the separator.

4. (Currently Amended) ~~A~~ The method for bonding a fuel cell separator and an electrode diffusion layer according to claim 3, comprising the further step of setting ~~characterized in that the welding pressure is to between about 10 to 50kgf/cm² (about 980 to 4903kPa) and the frequency of the vibration is 240Hz.~~

5. (Currently Amended) A method for manufacturing a fuel cell separator, comprising:

preparing a first separator and a second separator, each of said first and second separators being made of thermoplastic resin, at least one of said first and second separators having cooling water passage grooves formed therein;

bringing the first and second separators together such that the cooling water passage grooves formed in said at least one of the first and second separators is covered by the other of said first and second separators; and

~~then~~ applying a welding pressure to the first and second separators;

vibrating one of the first and second separators to produce frictional heat between the first and second separators and thereby welding the second separator to the first separator so as to form cooling water passages between said first and second separators; and

~~covering cooling water passage grooves formed in at least one of the first and second separators with the other separator to form cooling water passages.~~

6. (Currently Amended) A The fuel cell separator manufacturing method according to claim 5, comprising the further step of setting ~~wherein the welding pressure is to between about~~ 10 to 50kgf/cm² (about 980 to 4903kPa) ~~and the frequency of the vibration is 240Hz.~~

7. (New) The method for bonding a fuel cell separator and an electrode diffusion layer according to claim 4, comprising the further step of setting a vibration frequency to about 240Hz.

8. (New) The fuel cell separator manufacturing method according to claim 6, comprising the further step of setting a vibration frequency to about 240Hz.